Industrial Ergonomics Program

from the ground up

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Programs

- Checkout Assembly & Payload Processing (CAPPS)
- Florida Space Shuttle Operations (FSSO)
- International Space Station (ISS)
- Delta Rocket Programs

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Objective

- **Present step-by-step plan for implementing an industrial ergonomics program**

Overview

- Step-by-step process
- Resources
- Success stories

Foundation

Team effort

- Community for Assessment of Risk in Ergonomics (CARE)
- Safety Committees
- SHEA staff
- Human factors

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Step-by-step

Step 1:

- **Establish teams:**
  - Define membership
  - Mission statement
  - Outline objectives
  - Set goals

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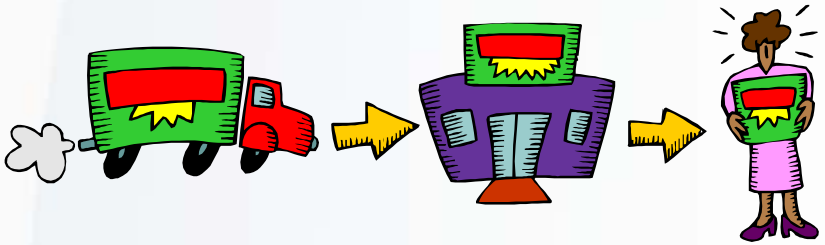
Step-by-step

Step 2:

- **Define a process:**
  - Determine requirements
  - Define responsibilities
  - Identify resources
  - Map a flow chart



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Step-by-step

Step 3:

- **Develop an action plan**
  - Define actions
  - Assign actionee(s)
  - Set completion dates
  - Track actions

Step-by-step

Step 4:

- **Identify jobs and rate risks**
  - Solicit employees
  - Review Job Safety Analysis
  - Review injury/illness data

Sample Job List

JSA No. or Identifier	Program	JSA Title	Low	Medium	High
CM-0001	PS/Delta*	Adhesive Application			
CM-0002	PS/Delta*	Administrative Tasks			
MM-0002	PS	Air Bearing Pallet Operations			
CM-0003	PS/Delta*	Air Guns			
MM-0003	PS/Delta*	Alignment Operations JSA			
CM-0004	PS/Delta*	Assembly of Components			
GS-0001	PS/Delta*	Band Saws			
GS-0002	PS	Battery Water Replenishment-Floor Scrubber			
CM-0005	PS/Delta*	Bench Grinder - Sharpeners			
GS-0003	PS/Delta*	Bench Testing			
CM-0006	ALL	Bicycle Usage			
GS-0004	ALL	Bloodborne Pathogens Clean-Up			
MM-0004	PS/Delta*	Boom Crane JSA			
GS-0039	PS/Delta*	Box Making_Fiberboard			
GS-0005	PS	Chain Saw Use			
GS-0006	PS/Delta*	Changing Saw Blades			

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Step-by-step

Step 5:

- **Decide on evaluation tools**
  - OSHA site
    http://www.osha.gov/SLTC/ergonomics/index.html
  - Rapid Entire Body Assessment (REBA)
    http://ergo.human.cornell.edu/ahREBA.html
  - Rapid Upper Limb Assessment (RULA)
    http://www.ergonomics.co.uk/Rula/Ergo/

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Step-by-step

Step 5 (continued):

- **Decide on evaluation tools**
  - NIOSH Lifting Equations
    http://www.cdc.gov/niosh/94-110.html
  - Snook tools
    http://hsc.usf.edu/~tbernard/ergotools/#lmt
  - 3D Static Strength Prediction Program
    http://www.engin.umich.edu/dept/ioe/3DSSPP/

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Step-by-step

Step 6:

- **Training**
  - Conduct a needs assessment
  - Make it hands on
  - Include additional resources
  - Identify focals
  - Mandate from management

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Step-by-step

Step 7:

- **Measure effectiveness**
  - Cost saving
  - Injury/illness rates
  - Number of close calls/mishaps

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Strategies

- Employee Wellness Programs
- Lean initiative
- Employee publications
- Job Safety Analyses (JSAs)
- Shop & Facility Inspections

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Success Story #1

Bins were lifted into the van.

Before

Bins were loaded and unloaded several times a day.

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Success Story #1

After

A truck with a lift gate was purchased

Success Story #2

Internal Thermal Control System

- Used to mix fluids for testing hardware
- Empty weight: 1,600 lbs.
- Full weight: 3,000 lbs.

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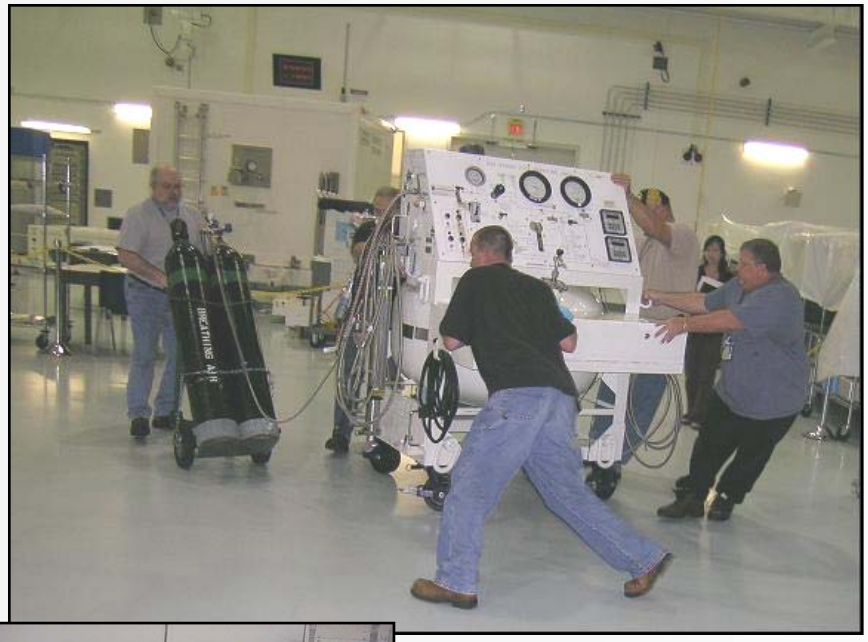
Success Story #2



- Moved “by hand”
- High risk for injury

- Fabrication of a multipurpose tow adaptor
- Use an electric tug

Summary

Foundation is a Team approach

- **Step-by-step process**
  - Establish team (s)
  - Define the process
  - Develop an action plan
  - Decide on tools
  - Conduct training
  - Measure effectiveness
- **Integrate with other strategies**

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